



# *X-Plain™*

## *Hip Replacement – Physical Therapy*

### **Reference Summary**

Hip replacement surgery is a very successful and safe operation. Long-term success mostly depends on the patient, though. The muscles around the hip joint must be strengthened after surgery and the patient needs to recognize the limitations of a new hip.

This reference summary reviews necessary steps that must be taken in order to get the most out of a new hip.

### **Anatomy**

The hip joint joins the pelvis to the femur, or thighbone. It is similar to a ball and socket joint. The head of the femur has a round shape, it moves in the hip socket. Unlike the knee joint, the hip joint moves in many directions. It allows the leg to go up and down, in and out, and also allows the leg to rotate.

Ligaments protect the head of the femur from coming out of the socket, or dislocating.

Even though the joint allows the hip to move, it is the muscles of the pelvis and legs that make moving possible.

There are many muscle groups that help the leg move. The ileo-psoas muscle allows the hip to bend forward. The gluteal muscles allow the hip to bend backward. The abductor muscles allow the leg to be pushed out. The adductor muscles allow the leg to be pulled in against the other leg. A combination of these muscles, as well as other smaller muscles, allow the leg to be rotated in and out.

The muscles that allow the hip to move are very important for any physical movement that the body does. Common activities that use the hip include:

- walking
- running
- going up and down stairs



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- sitting down

## Artificial Hips

Artificial hips have improved significantly over the years.

Artificial hips are made of 2 parts:

- a socket anchored in the pelvis
- a ball-type anchor that looks like a deformed ice cream cone

Artificial hips function a lot like a ball and socket device.

Artificial hips allow a very wide range of motion, even though it is a little less than normal. The muscles of the legs keep artificial hips in place and do not allow them to slide out of place or dislocate. This is why it is very important to strengthen leg muscles in the hip area after a hip replacement. It is best to strengthen ALL of the muscles of the legs.

Leg muscles are usually weak if they have not been used for months or years due to pain. The risk of dislocating a new hip joint is the highest during the first 6-8 weeks after surgery.

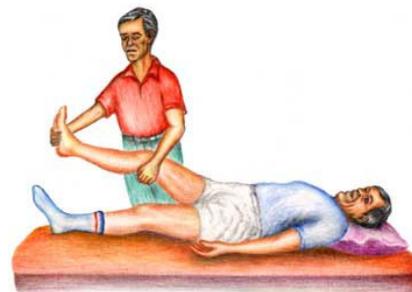
A dislocation usually happens if:

- the operated leg is allowed to be brought too close to the midline of the body
- the hip is allowed to bend more than 80 or 90 degrees

To prevent a new hip from dislocating, it is a good idea to put a pillow between the legs to prevent them from getting too close together. It is very important not to sit up straight in bed or in a chair for the first couple weeks after surgery. Using a high-rise toilet seat also helps prevent dislocation. Over time, as the muscles get stronger, preventative measures like these will not be as important.

## Physical Therapy

With time and physical therapy, your new hip will work and feel like a normal hip. However, there might be lots of pain and stiffness in the hip at first. Your orthopedic surgeon may recommend using crutches or a walker right after surgery to ease the pain.



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The surgeon will also let you know how much weight you can put on the operated leg. As your physical therapy progresses, you will be able to put more and more weight on the leg without feeling pain.

It is your responsibility to go to physical therapy, strengthen your leg, and improve the range of motion in your new hip. The surgeon, the nurse, and the physical therapist will guide and help you after your surgery. Right after surgery, when the hip is still healing, it is important to ask for enough pain medication to overcome surgical pain and start the exercise program.

After a while, pain usually disappears completely and exercising becomes more enjoyable. As with any physical therapy program, there are a few main guidelines to remember. The following are some tips to help you as you strengthen your new hip joint.

Start slow and progress gradually. Set achievable goals for yourself and discuss them with your physical therapist. Examples of such goals include:

- walking 100 yards
- going up or down the stairs
- taking a few trips around the block every day

Reward yourself as you achieve goals. If you reach a long-term goal, you could buy yourself a new outfit or rent a good movie!

Ask family and friends for help and motivation. For example, someone could walk with you and keep you company.

Stay in shape. Keep doing the exercises, even years after your operation.

Some pain may be expected. Lots of pain is not! Call your surgeon or physical therapist for advice or help at any time!

## **Exercises**

This section will explain some exercises that will help strengthen your leg and make your hip joint more flexible.

### ***Hip Extension – Gluteal Set***

Lie down flat and squeeze your buttock muscles together without holding your breath. Hold together for 5-10 seconds; repeat 15-20 times.

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### ***Knee & Hip Flexion***

While lying down flat, slide one heel at a time towards your body to a bent-knee position. Hold for 10-15 seconds; repeat 10-20 times.

### ***Knee & Hip Flexion with Assistance***

Do a knee and hip flexion exercise while pulling the foot toward the buttock using a rolled sheet. Hold for 10-15 seconds; repeat 10-20 times.

### ***Hip Abduction & Adduction***

While lying down with the legs straight and together, slide each leg separately out and then back in, while keeping the knee straight and the toes pointed up. Hold for 10-15 seconds; repeat 10-20 times.

### ***Isometric Hip Abduction***

Place a pillow in between the legs and a belt around the thighs just above the knee. Push out against the belt slowly, hold for 5-10 seconds, and relax. Repeat 15-20 times.

### ***Hip Extension – Bridging***

While lying down with knees bent and feet flat, lift up the buttock and hold it for 10-15 seconds. Repeat 10-20 times.

### ***Quadriceps Setting***

While lying on your back, keep your legs straight, together, and flat down with your arms by your sides. Tighten the quads, one leg at a time, while pushing the back of your knee down. Hold for 5 seconds, then relax for 5 seconds. Repeat about 10 times for each leg. You can do several sets of this exercise a few times every hour, if you can manage any pain you have.

### ***Knee Extension Hang***

After placing a rolled towel under the ankle, do quadriceps sets. This can be repeated a few times every hour, just like quadriceps setting.

### ***Terminal Knee Extension***

While lying down, place a pillow under your knees so that they are bent at a 30- or 40- degree angle. Straighten one leg at a time, hold it straight for about 5 seconds, then relax it slowly back to the initial position. Repeat 10-20 times, as much as you can manage pain.

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## ***Straight Leg Raising***

While lying on a bed, bend one leg, pulling the foot toward your body, until the foot is flat on the bed. Raise the other leg while keeping it straight, with the heel about 6 to 10 inches above the bed. Hold for 5 seconds, then relax slowly. Repeat 10-20 times. As you get stronger, you may want to place a sandbag over the raised foot to add resistance and gain more strength.



## ***Knee Flexion***

Right after surgery, your knee may feel stiff, especially when you bend it. You should eventually be able to bend your knee 90 degrees. Sit in a chair and tighten the back of your thigh while bringing the heel toward the chair. Hold for 5 seconds, and then relax. Repeat 10-20 times for each leg.

## ***Ankle – Two Exercises***

Slowly move each foot separately in a circular motion, first clockwise then counter-clockwise. Repeat 15-20 times.

While lying down, place a towel under the calf so that the heel is raised up. First, point the foot toward the nose and hold it for 5-10 seconds, then point it down and hold again for 5-10 seconds. Repeat 15-20 times

## **Heat & Ice**

Heat and ice can be used to aid with the exercises. Ice helps to decrease swelling and pain. A bag of crushed ice may be used for 10-20 minutes.

A heating pad may be used to loosen up the muscles and increase the range of motion in the hip; it can also be used for 10-20 minutes. It is important to remember that your hip surgery may cause decreased sensation in the hip; therefore, check the temperature of anything you put on your hip with your hand first. You should also look at the hip often while using heat to make sure you are not burning the skin!

## **Do's & Don'ts**

This section shows what you should and should NOT do, especially in the first few months after your surgery.

To avoid the risk of dislocating your new hip, you should not:

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- bend the hip too far toward the chest
- allow it to turn inward
- allow the leg to cross over the midline

Do not bend your hip any more than a right angle. Using chairs with arms and sliding down the chair when you sit are helpful practices that keep the hip from bending too far.

As you stand up from a chair, use your hands, arms, and the leg that was not operated on to push yourself up. Be careful not to bend your new hip more than 90 degrees! Do not sit on the floor, low stools, or toilet seats; this bends the hip more than 90 degrees. A high-rise toilet seat is recommended until you get stronger. Do not bend to put on your shoes, socks, or pants. You can use a reacher and wear slip-on shoes at first. Your occupational therapist will show you how to put your socks, pants, and shoes on. You may need some help.

Keep your kneecap pointing straight or slightly outward. Turning it inward can put significant stress on your new hip. This is important while you are standing, sitting, or lying down. Do not cross the operated leg over the midline of your body. This turns the kneecap inward. Keep pillows between your legs while you are sleeping. This prevents the operated leg from accidentally crossing the midline while you toss and turn in bed.



## Other Activities

Walking is recommended but does not replace the exercises pointed out in this lesson or by your physical therapist.

You should not drive until you have checked with the surgeon to make sure it would be safe. You should also check with your surgeon before having sexual intercourse after your hip surgery. If you need to have dental or surgical procedures, you should make sure to tell the dentist or surgeon about your hip replacement operation. You may need some antibiotics to prevent an infection in your artificial hip.

## Summary

Hip replacement surgery is a very successful and safe operation. The long-term results of this operation mostly depend on your faithful efforts toward strength and endurance. It is very important to exercise the leg and the whole body regularly. It is just as important to stay fit and not become overweight. The greatest majority of patients who have a hip replacement are able to resume most of their activities and live active and painless lives.

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